
Environmental Protection Agency
Region 3
Superfund Program

PROPOSED PLAN

Saunders Supply Company Site
Chuckatuck, Virginia May 1991

Introduction

The U.S. Environmental Protection Agency Region 3 (EPA) has completed a Remedial Investigation/Feasibility Study (RI/FS) to address the contamination at the Saunders Supply Company Site located in Chuckatuck, Virginia. The RI/FS has been completed as part of the EPA Superfund remedial program at the Saunders Supply Company Site (Site). This PROPOSED Remedial Action Plan (Plan) summarizes the RI/FS reports, identifies the remedial alternative preferred by EPA, and explains the reasons for this preference. EPA, the lead agency for Superfund activities at the Site, is issuing the Plan to fulfill the requirements under Sections 113(k), 117(a), and 121(f) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended. EPA, in consultation with the Commonwealth of Virginia, will make its final selection of a remedy for the Site in a Record of Decision.

This is the first and only remedy anticipated for the Site. This remedy will address all of the media impacted by the contamination at the Site. EPA has determined that it is not warranted at this time to split the Site remediation into operable units to address individual media.

Public Participation

The EPA and the Commonwealth of Virginia encourage the public to review and comment on the preferred alternative, the Proposed Plan, the RI/FS, and the other documents comprising the

Administrative Record for the Site. Interested parties may comment during a public comment period which begins on May 23, 1991 and closes on June 21, 1991. Written comments must be postmarked no later than June 21, 1991. All comments submitted during the comment period will be reviewed and considered as part of the remedy selection process. The EPA, in consultation with the Commonwealth of Virginia, will select a final remedy for the Site at the end of the comment period.

EPA, in consultation with the Commonwealth of Virginia, may modify the preferred alternative or select another response action presented in this Plan and the Feasibility Study based on new information or public comments. Therefore, the public is encouraged to comment on all of the identified alternatives. The final remedy will be selected in a Record of Decision, which will be placed in the repository for public review (see below).

Persons interested in reviewing the Plan and related documents in the Administrative Record will find this information at a repository located at the Morgan Memorial Library, 443 West Washington Street in Suffolk, Virginia (804-934-7686). To comment, interested parties should write to the following EPA representatives:

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EPA and the Virginia Department of Waste Management (VDWM) will hold a public meeting at 7:00 pm on June 4, 1991, at the Oakland Elementary School, 5505 Godwin Boulevard, Suffolk, Virginia to discuss the remedial alternatives and the current preferred remedy for the Site. Interested citizens will be provided an opportunity to ask questions and provide verbal comments at that time.

Site Background

The Saunders Supply Company Site is located in the village of

Chuckatuck, a rural area of Suffolk, Virginia (see Site location map). The property occupies approximately 7.3 acres along State Route 10/32, which defines the eastern boundary of the property. Saunders Supply Company treats lumber at the Site before distribution.

The Saunders facility slopes toward a drainage ditch and an intermittent stream adjacent to and west of the Site. These surface water bodies discharge to Godwin's Millpond (also known locally as Crump's Millpond) located approximately 500 feet north of the Saunders property. Godwin's Millpond is used as a municipal water source for the city of Suffolk. Drainage from the vicinity of the Saunders wood treatment and wood storage operations is also received by storm sewers (catch basins) along Route 10/32, which discharge to a drainage swale and are ultimately received by Cedar Creek, located approximately one mile to the east of the Saunders property. A pond was constructed on the western portion of the Saunders property to hold water used for process cooling purposes. This pond is referred to as the wastewater pond.

Wood storage areas are located primarily on the southern portion of the Saunders property. Wood treatment facilities and the former conical burn pit area is located on the north central portion of the property while the former earthen separation pond is located on the northwestern portions of the property.

On-site chemical treatment of lumber began in 1964. At that time, wood was treated in a pressure cylinder, using a 5 % pentachlorophenol (PCP) solution in No. 2 fuel oil. A second cylinder was placed into operation in 1971. In 1974, a third cylinder using a copper, chromium, and arsenic (CCA) solution was put into operation. By 1984, the first and second cylinders were converted from the PCP process to the CCA process.

When in use, the spent PCP treatment solutions were periodically drained from the cylinders into a series of oil/water separators. The third and final separator in the series was an unlined pond, now referred to as the former earthen separation pond, located southeast of the existing wastewater pond on the property. A crust-like residue that formed on the surface of this former pond was occasionally burned as a training exercise for the local fire company. When the pond was taken out of service, it was filled in and covered over with soil. The PCP sludge that remained at the bottom of the pond is a listed hazardous waste under RCRA and is known as a K001 waste. The sludge at the bottom of the wastewater pond is also considered a K001 waste.

Sludge removed during maintenance of the PCP treatment cylinders and oil/water separators was used on the roads and/or around the lumber storage areas to control dust and weeds from approximately 1966 through 1981. In 1969, a conical burner, used primarily for

the disposal of lumber scraps and sawdust, was also used periodically to incinerate some of the sludges. The conical burner ceased operations in 1974 and has since been removed. Off-site disposal of sludges generated by the PCP process took place from 1981 through 1985.

EPA proposed that the Site be listed on the National Priorities List (NPL) in January 1987. The Site was finalized on the NPL in October 1989. Between March 1989 and May 1991, an RI/FS was conducted by Ecology and Environment, Inc. under contract with EPA Region 3. The RI/FS was conducted to identify the types, quantities, and locations of contaminants and to develop ways of addressing the contamination problems. Based on the review of these reports, EPA and VDWDM have determined the following:

1. The surface soils and surface runoff are contaminated with arsenic, PCP, and dioxin.
2. The subsurface soils, sediments of the wastewater pond, and sediments in the storm sewer are contaminated with PCP and dioxin.
3. The ground water in the underlying shallow aquifer, the Columbia, and the deeper aquifer, the Yorktown is contaminated with PCP.

Summary of Site Risks

As part of the RI/FS, an analysis was conducted to estimate the human health and environmental effects that could result if the contamination at the Site was not remediated. This analysis is commonly referred to as a baseline risk assessment. In conducting this assessment, three exposure scenarios were developed: contact with the skin or ingestion of surface soils for the current workers, contact with the skin or ingestion of surface soils for future residential use, and the ingestion of ground water for future residential use. The analysis focused on the following list of six contaminants of concern:

arsenic
chromium (total)
chromium (hexavalent)
copper
dioxin/furans
PCP

Of these contaminants, arsenic, hexavalent chromium, dioxin and PCP are known to cause cancer in laboratory animals and thus are classified as carcinogens.

The magnitude of risks for all exposure pathways under both soil exposure scenarios are 3.6×10^{-4} for the current workers and 9.9

$\times 10^{-4}$ for future residential exposures. In other words, if no remedial action is taken, approximately four additional people per ten thousand have an increased risk of developing cancer as a result of working at the Saunders facility and approximately one person per one thousand would have an increased risk of developing cancer as a result of living on the property. To determine the human health effects from contaminants which do not cause cancer, EPA uses the Hazard Index (HI). Any media with a cumulative HI greater than 1.0 poses a risk to human health. Noncancer adverse health effects from soil exposures would not be expected, as the HI's from these scenarios are less than 1.

The magnitude of risks posed by PCP concentrations in ground water were quantitatively evaluated for both the Columbia and the Yorktown aquifers using a residential ground water usage exposure scenario. The results of the evaluation indicate cancer risks of 2.4×10^{-4} for the Yorktown aquifer and 1.8×10^{-2} for the Columbia aquifer. In other words, if no remedial action is taken, two additional people per ten thousand have a chance of developing cancer as a result of ingestion of the ground water from the Yorktown aquifer and two additional people per hundred have a chance of developing cancer as a result of ingestion of ground water from the Columbia aquifer. The PCP concentrations in the Columbia represent an HI of 12. PCP concentrations in the Yorktown would not pose noncarcinogenic effects as the HI is less than 1. This evaluation was intended to provide a reference point for evaluating future ground water risks; it does not represent actual exposures. Actual exposures under the domestic use scenario are unlikely because the Columbia has the characteristics of a Class IIIA aquifer by not having sufficient yield to support a domestic household and, although having the characteristics of a Class IIA aquifer, domestic use of the Yorktown is not likely since a public water source is already available.

The risks to human health posed by the contamination at the Site under the three exposure scenarios listed above exceed the acceptable risk range of 10^{-4} to 10^{-6} as contained in §430.(e)(2)(i)(A)(2) of the NCP.

Beside the above exposures, EPA has to assure whatever it does at the Site is protective of Godwin's Millpond, which is a present day drinking water source for the city of Suffolk. Although contamination has not reached the Millpond, EPA has determined that PCP contamination in the Columbia aquifer may reach the Millpond through a clay outcrop in the intermittent stream west of the Site. Also PCP contamination in the Yorktown may reach the Millpond through discharge of the Yorktown aquifer to the Millpond.

Although the ecological assessment has found a potential for ecological impacts in the sediments of Godwin's Millpond and the

intermittent stream adjacent to the Saunders' property, the extent of the contamination indicates that a source(s) other than Saunders is primarily responsible for these effects. The distribution in surface waters and sediments does not provide any evidence that contaminants related to Saunders are the cause of adverse ecological impacts.

Actual or threatened releases of hazardous substances from this Site, if not addressed by the preferred alternative or one of the other active measures considered, may present an imminent and substantial endangerment to public health, welfare, or the environment.

Scope and Role of Remedial Action

A significant risk to human health or the environment must exist in order for EPA to initiate response activities. At this Site, the significant risks occur via the soils, sediments and the ground water. As such, EPA plans to remediate the threats posed by these media.

Summary of Alternatives

In the FS for the Site, engineering technologies applicable to remediating the contaminated media were screened according to their effectiveness and implementability. Those technologies which were determined to be most applicable were then developed into remedial alternatives. The following remedial alternatives are numbered to correspond to the alternatives in the FS report:

Alternative 1: No Action.

Alternative 2: Capping of the Site, Surface Sealing of Concrete Pads, Ground Water Treatment of the Columbia Aquifer, Remediation of the Storm Sewers, Limited Action, and Institutional Controls.

Alternative 3A: On-Site Dechlorination of Soils and Sediments, Off-Site Disposal of all Soils and Sediments, Scarification and Off-Site Disposal of Concrete Pads, Remediation of the Storm Sewers, Limited Action, and Institutional Controls.

Alternative 3B: On-site Dechlorination of Soils and Sediments, Off-Site Disposal of K001 Sediments, On-Site Disposal of Soils and Storm Sewer Sediments, Scarification and Off-Site Disposal of Concrete Pads, Remediation of the Storm Sewers, Limited Action, and Institutional Controls.

Alternative 4A: On-Site Dechlorination of K001 Sediments, On-Site Low Temperature Desorption of Soils. Off-Site

Disposal of all Soils and Sediments, Scarification and Off-Site Disposal of Concrete Pads, Remediation of the Storm Sewers, Limited Action, and Institutional Controls.

Alternative 4B: On-Site Dechlorination of K001 Sediments, On-Site Low Temperature Thermal Desorption of Soils and Storm Sewer Sediments, Off-Site Disposal of K001 Sediments, On-Site Disposal of Soils and Storm Sewer Sediments, Scarification and Off-Site Disposal of Concrete Pads, Remediation of the Storm Sewers, Limited Action, and Institutional Controls.

Alternative 5: In-Situ Vitrification of the Soils and Sediments, Scarification and Off-Site Disposal of Concrete Pads, Remediation of the Storm Sewers, Limited Action, and Institutional Controls.

Common Elements Except for the "No Action" alternative, all of the alternatives for the Site have some common elements. Alternatives 2 through 5 include limited action and institutional ground water controls. This consists of removing and plugging the preexisting wells screened across the clay layer. It also includes institutional controls such as deed restrictions to prevent exposure to contaminated ground water. It also includes restricting off-site ground water extraction that would increase contaminant plume migration. These alternatives also include ground water monitoring of the Columbia and Yorktown aquifers.

Alternative 1

The National Oil and Hazardous Substances Contingency Plan, 40 C.F.R. Part 300 (NCP), which regulates Superfund response actions, requires that a "No Action" alternative be evaluated at every NPL site in order to establish a baseline for comparison. Under this alternative, EPA would take no further action at the Site to prevent exposure to the contaminated media or to reduce risk at the Site.

Alternative 2

Capital Cost:	\$1,605,859
Annual O&M Cost:	\$ 195,600
Present Worth:	\$3,459,273

Alternative 2 consists of capping of the soils and sediments, extraction and activated carbon treatment of ground water from the Columbia aquifer using subsurface drains, discharge to the Chuckatuck Creek, removing and plugging of the preexisting wells which are screened across the clay layer, surface sealing of the concrete pads, cleaning and sliplining of the storm sewers, 30

years of ground water monitoring, and institutional controls. Excluding the long-term ground water monitoring, Alternative 2 will take approximately 1 year to complete.

Alternative 3A

Capital Cost:	\$25,823,520
Annual O&M Cost:	\$ 11,000
Present Worth:	\$25,933,998

Alternative 3A consists of on-site chemical dechlorination treatment of approximately 25,000 tons of soils and sediments, off-site disposal of all of the soils and sediments in a RCRA Subtitle C permitted facility, removing and plugging of the preexisting wells screened across the clay layer, scarification (removal of the first inch) and off-site disposal of the concrete pads, slip lining of the storm sewers, 30 years of ground water monitoring, and institutional controls. Excluding the long-term ground water monitoring, Alternative 3A will take approximately 2 to 3 years to complete. The excavation of the soils requires dewatering the area. Removal, and subsequent treatment, of this contaminated water will substantially remove the PCP contamination in the Columbia aquifer.

Alternative 3B

Capital Cost:	\$13,977.058
Annual O&M Cost:	\$ 12,000
Present Worth:	\$14,096,963

Alternative 3B consists of on-site chemical dechlorination treatment of approximately 25,000 tons of soils and sediments, off-site disposal of the K001 sediments in a RCRA Subtitle C permitted facility, on-site disposal of the soils and the storm sewer sediments, removing and plugging of the preexisting wells screened across the clay layer, scarification and off-site disposal of the concrete pads, slip lining of the storm sewers, 30 years of ground water monitoring, and institutional controls. Excluding the long-term ground water monitoring, Alternative 3B will take approximately 3 to 4 years to complete. The excavation of the soils requires dewatering the area. Removal, and subsequent treatment, of this contaminated water will substantially remove the PCP contamination in the Columbia aquifer.

Alternative 4A

Capital Cost:	\$20,374,730
Annual O&M Cost:	\$ 11,000
Present Worth:	\$20,485,209

Alternative 4A consists of on-site dechlorination of K001

sediments, on-site low temperature thermal desorption of soils and storm sewer sediments, off-site disposal of all soils and sediments in a RCRA Subtitle C permitted facility, removing and plugging of the preexisting wells screened across the clay layer, scarification and off-site disposal of the concrete pads, slip lining of the storm sewers, 30 years of ground water monitoring, and institutional controls. Excluding the long-term ground water monitoring, Alternative 4A will take approximately 2 to 3 years to complete. The excavation of the soils requires dewatering the area. Removal, and subsequent treatment, of this contaminated water will substantially remove the PCP contamination in the Columbia aquifer.

Alternative 4B

Capital Cost:	\$8,528,268
Annual O&M Cost:	\$ 12,000
Present Worth:	\$8,648,173

Alternative 4B consists of on-site dechlorination of K001 sediments, on-site low temperature thermal desorption of soils and storm sewer sediments, off-site disposal of K001 sediments in a RCRA Subtitle C permitted facility, on-site disposal of soils and storm sewer sediments, removing and plugging of preexisting wells screened across clay layer, scarification and off-site disposal of concrete pads, slip lining of the storm sewers, 30 years of ground water monitoring, and institutional controls. Excluding the long-term ground water monitoring, Alternative 4B will take approximately 3 to 4 years to complete. The excavation of the soils requires dewatering the area. Removal, and subsequent treatment, of this contaminated water will substantially remove the PCP contamination in the Columbia aquifer.

Alternative 5

Capital Cost:	\$15,834,106
Annual O&M Cost:	\$ 11,000
Present Worth:	\$15,944,584

Alternative 5 consists of in-situ vitrification of all soils and sediments, removing and plugging of preexisting wells screened across clay layer, scarification and off-site disposal of concrete pads, slip lining of the storm sewers, 30 years of ground water monitoring, and institutional controls. Excluding the long-term ground water monitoring, Alternative 5 will take approximately 1 to 2 years to complete.

Evaluation of Alternatives

The preferred alternative for remediating the contamination at the Site is Alternative 4A. Based on current information,

Alternative 4A provides the best balance of trade-offs among the alternatives with respect to the nine criteria that EPA uses to evaluate alternatives. This section of the Plan profiles the performance of the preferred alternative against the nine criteria and explains how it compares to the other alternatives under consideration.

Overall Protection of Human Health and the Environment

Because contaminants could easily migrate via surface water runoff and because contaminant levels already exceed health-based levels, Alternative 1, the No Action alternative, would not be protective of human health or the environment. Since protection of human health and the environment is a threshold criteria for any Superfund action, this alternative cannot be selected and thus will not be evaluated further.

All of the remaining alternatives would be protective of human health and the environment. The in-situ vitrification in Alternative 5 would eliminate soil contaminant exposure pathways due to the destruction of organic contaminants and immobilization of inorganic contaminants; also, this process would evaporate a substantial portion of the contaminated ground water in the Columbia aquifer, thereby reducing risks associated with the exposure pathways. The treatment and off-site disposal of all contaminated soils and sediments in Alternatives 3A and 4A would eliminate exposure risks for these materials. In Alternatives 3B and 4B, the off-site disposal of the K001 sediments would eliminate the exposure risks for this media and the on-site treatment to health-based levels and disposal of the soils and the storm sewer sediments would reduce the magnitude of risks posed to acceptable levels. The cap and ground water provisions of Alternative 2 would reduce the risks to human health to less than 1×10^{-6} for carcinogens and to less than 1 for non-carcinogens.

Compliance with ARARs

For all alternatives, the To Be Considered (TBC) chemical-specific ARAR for the ground water is the Maximum Contaminant Level (MCL) of 1 ppb of PCP that is proposed in 56 F.R. 3526. The proposed MCL would be met at the Site boundary for the Columbia and the Yorktown aquifers.

The National Historic Preservation Act is a potential location-specific ARAR for all alternatives. The final decision regarding the applicability of this act will be decided by the Virginia State Historic Preservation Officer (SHPO). If a decision is made that it is an ARAR, it will be complied with and any mitigating measures required by the SHPO will be included into the design of the remedial action.

In Alternative 2, the extracted ground water from the Columbia aquifer must meet the permit requirements to be developed by the Virginia State Water Control Board prior to discharge to the Chuckatuck Creek. The treatment, storage, and disposal of the spent activated carbon from the ground water treatment system must meet the requirements of 40 C.F.R. Part 268 and Parts VII and X of the Virginia Hazardous Waste Management Regulations (VHWMR).

In Alternatives 4A and 4B, the air emissions from the low temperature thermal desorption must comply with Virginia Department of Air Pollution Control (VDPAC) Regulations for the Control and Abatement of Air Pollution and applicable federal regulations. The treatment, storage, and disposal of spent carbon, if used for treatment of off gases, must be in compliance with 40 C.F.R. Part 268 and Parts VII and X of the VHWMR.

The contaminated soils and sediments that are excavated must be disposed of after treatment. The following are ARAR's, depending if they are disposed on-site or off-site.

In Alternatives 3A and 4A (off-site disposal), the treated soil and sediments must meet RCRA treatment standards codified in 40 C.F.R. Part 268 prior to land disposal in a RCRA permitted disposal facility. Also, transportation of the wastes must be in compliance with the EPA regulations of Title 40, the Department Transportation's (DOT) hazardous materials regulations of Title 49, and Part VII of the VDWMR.

In Alternatives 3B and 4B (on-site disposal), backfilling of treated soil and storm sewer sediments requires delisting the soil in accordance with Part XIV of the Virginia Hazardous Waste Management Regulations, in addition to meeting the de minimus levels. As a listed waste, the K001 sediments must be disposed of in a RCRA Subtitle C permitted facility and, as such, must meet the RCRA treatment standards in 40 C.F.R. Part 268 as well as Part VII of the VDWMR prior to disposal. If the scarified material from the concrete pad is determined to be a RCRA characteristic waste, disposal would have to be in conformance with 40 C.F.R. Part 268. Transportation of the K001 sediments and concrete pad must be in conformance with EPA regulations of Title 40 and the DOT hazardous materials regulations of Title 49.

In Alternative 5, the off gases generated by the treatment system must be in compliance with the VDAPC and applicable federal regulations.

Long Term Effectiveness and Permanence

By effectively treating and disposing of the contaminated soils and sediments which pose a direct contact risk, Alternatives 3A, 3B, 4A, and 4B offer the most long term effectiveness and

permanence. Further degradation of the Yorktown aquifer is curtailed by plugging the preexisting wells and substantial removal and treatment of the contaminated ground water in the Columbia aquifer during the dewatering process required for the excavation of soils. However, levels of PCP which do not pose a direct contact risk (i.e. greater than 1.46 ppm) would remain in the soil. These levels may result in PCP concentrations above 1 ppb partitioning into the Columbia aquifer. Therefore, monitoring of the Columbia and Yorktown would be required to assure that the remedial goal of 1 ppb is not exceeded at the site boundary.

Although Alternative 5 would likely eliminate the risks posed by the soil contaminants, there is a slight chance of future risks from immobilized inorganic contaminants leaching out. As with Alternatives 3A, 3B, 4A, and 4B, the PCP above the direct contact risk level of 1.46 ppm may partition to the Columbia aquifer in concentrations which may exceed the 1 ppb MCL, requiring monitoring of the aquifer.

Alternative 2 would reduce the direct contact risks as long as the cap is properly maintained; however, long term threats remain if the remedy should fail. Since the soils are not treated in this alternative, the ground water in the Columbia aquifer must be. The 1 ppb MCL for PCP would be attained at the site boundary by extraction and treatment of contaminated ground water from the Columbia via subsurface drains and through plugging of the preexisting wells and dispersion by natural flow conditions in the Yorktown.

Reduction of Toxicity, Mobility, or Volume

In Alternatives 3A and 3B, the chemical dechloronation treatment would reduce the toxicity of the soils and sediments by destroying the PCP and dioxin/furan contaminants. The actual effectiveness would be determined by treatability testing. The excavation of the subsurface soils would require dewatering of the Columbia aquifer; this water would then be treated prior to discharge.

In Alternatives 4A and 4B, the chemical dechloronation process would be used to destroy the PCP and dioxin/furan contaminants present in the K001 waste. The low temperature thermal desorption would be used to treat the soils and the storm sewer sediments. This process transfers the organic contaminants from the soil phase to the air phase. The air then must be treated either by catalytic or thermal oxidation or by carbon adsorption. The oxidation would immediately destroy the contaminants while carbon regeneration would destroy the contaminants. The actual effectiveness would be determined by treatability testing. The excavation of the subsurface soils would require dewatering of the Columbia aquifer; this water would then be treated prior to

discharge.

In Alternative 5, the in-situ vitrification would destroy the organic contaminants by pyrolysis and immobilize the inorganic contaminants.

In Alternative 2, there is no reduction in the toxicity, mobility, or volume of the soils or sediments. Ground water would be extracted from the Columbia aquifer and treated using the carbon adsorption process. The actual contaminants would be destroyed when the carbon is regenerated.

Short Term Effectiveness

All of the alternatives would entail a temporary increase in dust production, noise disturbance, and truck traffic during the implementation of the remedy, with Alternative 2 constituting the least and Alternatives 3A and 4A constituting the most, because of the off-site disposal.

In Alternatives 3B and 4B, it would take a considerable amount of time to delist the contaminated soils. Because this would extend the amount of time of an unacceptable risk to the employees at the Site, a one foot layer of clean soil/gravel mixture would have to be placed across the Site. This delay would also permit further contamination of the ground water.

In Alternatives 3A, 3B, 4A, 4B, and 5, during scarification of the concrete pad, protection would be required against the high noise levels and against contact and inhalation of contaminated dust particles. The later would be accomplished by scarifying with a vacuum system.

In Alternative 5, during the vitrification process, additional PCP may migrate to the Yorktown aquifer, although the MCL of 1 ppb is not expected to be exceeded at the Site boundary.

Implementability

Alternative 2 would be simple to construct and operate. The operation of Alternatives 3A and 4A would be straightforward. The handling, treatment, and disposal of the 25,000 tons of contaminated material would require a design plan sequencing remedial activities to facilitate an efficient removal. Alternatives 3B and 4B would be more difficult to execute because of the delisting process. Alternative 5 would be difficult to operate because of the varying depths of soil contamination.

All of the alternatives are equal in regards to the treatment/disposal of residuals. Availability of such facilities is adequate. The spent carbon from the ground water treatment system under Alternative 2 would require regeneration at an off-

site facility. Alternatives 3A and 4A include the disposal of 25,000 tons of treated soils and sediments in a RCRA permitted facility. Alternatives 3A and 3B require off-site regeneration of 12,000 to 20,000 pounds of dechlorination reagent. Spent carbon from the treatment of wastewaters and/or treatment of off gases under Alternatives 3A, 3B, 4A, 4B, and 5 would require regeneration at an off-site facility. The water from the wastewater pond and from the cleaning/flushing of storm sewers can be adequately treated at a Publicly Owned Treatment Works (POTW).

Cost

Alternatives are compared with respect to the present worth cost. The present worth costs developed in the FS for comparing alternatives include 30 years of ground water monitoring. At present, it is not known how long the ground water in the Columbia aquifer must be treated in Alternative 2. For comparative purposes, a period of 30 years was used in this analysis.

The present worth costs of the alternatives range from \$3,436,500 for Alternative 2 to \$24,192,500 for Alternative 3A. The present worth cost of the preferred alternative, Alternative 4A, is \$20,514,500.

State Acceptance

The Commonwealth of Virginia has reviewed the RI and FS reports and will indicate its concurrence with the selected alternative following the public comment period for the Proposed Plan.

Community Acceptance

The preferred alternative of the community will be identified upon evaluation of comments received during the public comment period.

Summary of Preferred Alternative

At this time, EPA prefers Alternative 4A to remediate the contamination at the Site. This alternative would substantially reduce the risks at the Site by excavating, treating and disposing of the contaminated soils and sediments; substantially removing and treating the contaminated water in the Columbia aquifer as part of the dewatering process; cleaning and sliplining the storm sewers; scarifying and removing the concrete pads, with disposal in an off-site facility, as appropriate; and ground water monitoring of the Columbia and Yorktown aquifers.

The K001 wastes (the sediments in the wastewater and former earthen separation ponds) would be treated using the chemical

dechlorination process. The soils and storm sewer sediments would be treated using the low temperature thermal desorption process. If the scarified material from the concrete pads is determined to be RCRA characteristic wastes under the Toxicity Characteristic Leaching Procedure (TCLP) test, the scarified material will be solidified and disposed of at an off-site RCRA facility; if it is not a characteristic waste, it will be disposed in a landfill with the remainder of the concrete pads. The wastewaters generated as a result of the remedy will be trucked to a POTW for treatment and disposal. If required by the pretreatment requirements of the POTW, the wastewaters will be pretreated prior to discharge to the POTW. A determination on the method of off gas treatment will be made during the design process. Because this alternative would result in levels of PCP contamination remaining in the soil which could desorb to the ground water in levels exceeding the proposed MCL of 1 ppb, 5-year reviews are required by Section 121(c) of CERCLA to monitor the effectiveness of the remediation. Alternative 4A is believed to provide the best balance of trade-offs among the alternatives with respect to the evaluation criteria.

Based on the information available at this time, EPA believes the preferred alternative would be protective of human health and the environment, would comply with ARARs, would be cost-effective, and would use permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Because the remedy would treat the PCP and dioxin/furan contamination present in the soils and sediments, the remedy also would meet the statutory preference for the use of a remedy that involves treatment as a principal element.